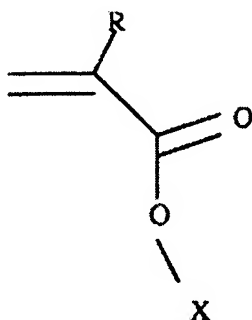


CLAIMS:

1. A process for depositing by electro-grafting a strong adherent polymer coating onto an electrically conductive surface comprising the step of electrochemically grafting an active monomer at said surface for forming a primer coating P onto said surface, said monomer having as general formula of:



- wherein R represents hydrogen or methyl
and said monomer comprises an X group
which is part of a preformed polymer or
is as an intermediate agent for polyaddition reaction or
is an anchoring group for attachment of a molecule having at least one
complementary reactive group.
2. The process according to claim 1 wherein X is an intermediate agent of polyaddition.
3. The process according to claim 2 wherein the intermediate agent is an initiator for radical polymerization via nitroxide radical(NMP) reacting with a second monomer for forming a polymer top coating TC.
4. The process according to claim 3 wherein the initiator is an alkoxyamine for the initiation of styrene polymerization.

5. The process according to claim 4 wherein the monomer is 1-acryloxy-2phenyl-2(2', 2', 6',6'- tetramethyl-l'piperidinyloxy)ethane.

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6. The process according to claim 2 wherein the intermediate agent is an initiator for radical polymerization via atom transfer polymerisation(ATRP) reacting with a second monomer for forming a polymer top coating TC.

10 7. The process according to claim 6 wherein the monomer is (2-chloropropionate of ethyl acrylate for forming poly(2-chloropropionate) ethyl acrylate as primer coating P.

8. The process according to claim 6 further comprising a metallic complex to catalyse the atom transfer polymerization for forming a polymer top coating TC.

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9. The process according to claim 8 wherein the polymer top coating is polyester.

10. The process according to claim 2 wherein the intermediate agent is an initiator or a transfer agent for reversible-addition-fragmentation (RAFT) for forming a polymer top
20 coating TC.

11. The process according to claim 1 wherein the intermediate agent is an initiator for ring opening polymerisation(ROP) reacting with a second monomer for forming a polymer top coating TC.

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12. The process according to claim 11 wherein X is an alkoxide, preferably, an aluminum alkoxide.

13. The process according to claim 12 wherein the monomer is ethyl acrylate.

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14. The process according to claim 13 wherein the second monomer is ϵ -caprolactone for forming poly(ϵ -caprolactone) as polymer top coating.
15. The process according to claim 12 wherein the second monomer is D, L-lactide
5 for forming poly(D,L-lactide as polymer top coating.
16. The process according to claim 1 wherein X is part of a preformed polymer.
17. The process according to claim 16 wherein the preformed polymer is
10 biocompatible and/or biodegradable.
18. The process according to claim 17 wherein the preformed polymer is (homopoly(4-(acryloyloxy)- ϵ -caprolactone)(polyACL).
- 15 19. The process according to claim 14 wherein the preformed polymer is polyethyleneoxide diacrylate.
20. The process according to claim 1 wherein the X is an anchoring group for attachment of a molecule or a macromolecule having at least one complementary reactive
20 group.
21. The process according to claim 20 for the attachment of a macromolecule forming a polymer top coating.
- 25 22. The process according to claim 20 wherein the complementary reactive group is an amino group.
23. The process according to claim 20 wherein X is N-acryloyloxy succinimide.

24. The process according to claim 23 wherein the macromolecule is polystyrene containing amino groups.
25. The process according to claim 24 wherein the top coating is poly(meta
5 (isopropyl-2-amino)styrene-co-styrene).
26. The polymer coating on an electrically conductive surface obtained by the process according to claim 1.
- 10 27. The polymer coating according to claim 26 having an adhesion strength superior to 3700 N/m.
28. The polymer coating according to claim 26 having a thickness superior to one micron.
- 15 29. Use of the polymer coating obtained by the process according to claim 1 for a metallic prosthese.
30. The use according to claim 29 for a stent.
- 20 31. The use of the polymer coating obtained by the process according to claim 1 as barrier coatings.
32. The use of the polymer coating obtained by the process according to claim 1 as
25 insulating layers.
33. The use of the polymer coating obtained by the process according to claim 1 as anti-scratching.